

Chapter 3

WATER SUPPLY

GOALS

The State of Florida has statutory goals for water supply. Excerpts from these goals are as follows:

- Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards (*State Comprehensive Plan*, Section 187.201(8)(a), F.S.).
- It is the intent of the Legislature that future growth and development planning reflect the limitations of the available ground water or other available water supplies (Section 373.0395, F.S.).
- The encouragement and promotion of water conservation and reuse of reclaimed water, as defined by the Florida Department of Environmental Protection (FDEP), are state objectives (Section 403.064, F.S., and Section 373.205, F.S.).
- The *State Comprehensive Plan* (Chapter 187, F.S.) states as a goal that Florida “shall maintain the functions of natural systems and the overall present level of surface and ground water quality.”
- The *State Comprehensive Plan* (Chapter 187, F.S.) lists as a policy: “Reserve from use that water necessary to support essential nonwithdrawal demands, including navigation, recreation and the protection of fish and wildlife.”
- The Water Resources Act of 1972 (Chapter 373, F.S.) states: “The minimum water level shall be the level of ground water in an aquifer and the level of surface water at which further withdrawals would be significantly harmful to the water resources of the area.”
- The District’s *Water Supply Policy Document* (SFWMD, 1991) affirms that “the District recognizes the state policies which establish priority protection of the water supply required to maintain and enhance healthy natural systems.”
- The SFWMD has statutory responsibility to review and comment on comprehensive plans, plan amendments (Chapter 163, F.S.), and the Developments of Regional Impact (DRI) to the Department of Community Affairs. The District provides assistance to local governments in the development and amendments of water resource elements of comprehensive plans and evaluation and appraisal reports.

In order to accomplish these statutory requirements, the SFWMD, during the development of the DWMP, has summarized its goals for water supply as follows:

- Assure an adequate supply of water for all existing and projected reasonable and beneficial uses
- Increase available water supply
- Promote the use of alternative water supply sources and conservation
- Protect the water quality of source water from degradation and natural systems from significant harm, which could result from water use

RESOURCE ASSESSMENT

Needs and Sources

In accordance with Section 373.036(2)(b)4, F.S., the SFWMD prepared a *Districtwide Water Supply Assessment* (DWSA) (SFWMD, 1998b). The DWSA includes water demand assessments and projections, and descriptions of the surface water and ground water resources within each of the SFWMD's four planning regions. Demand assessments for 1995 and projections for 2020 are presented in the DWSA (SFWMD, 1998b) for the following water use categories:

- Public Water Supply (PWS)
- Domestic Self-Supply and Small Public Supply Systems
- Commercial/Industrial Self-Supply
- Recreational Self-Supply
- Thermoelectric Power Generation Self-Supply
- Agricultural Self-Supply

The first five categories of use are associated with population and may be grouped together as urban use. The sixth category, agricultural self-supply, is related to acreage and type of irrigated agricultural crops. Environmental demands are not quantified in the DWSA, but are addressed during the water supply planning process through the incorporation of resource protection criteria.

Table 8 summarizes the water demands assessed for 1995 and projected for 2020 under average rainfall conditions (SFWMD, 1998b). Total District water demands are projected to increase by 24 percent, from 1,368,710 million gallons per year (mgy) in 1995 to 1,698,072 mgy in 2020. Districtwide, population is projected to increase by 43 percent, from 5,755,634 in 1995 to 8,222,781 in 2020. This increase in population will result in an increase in urban water demands, which are projected to rise by 49 percent from 521,011 mgy in 1995 to 777,394 mgy in 2020. Irrigated agricultural acreage is projected to rise by five percent from 1,075,993 acres in 1995 to 1,124,552 acres in 2020.

Annual average agricultural demands are projected to rise by nine percent from 847,699 mgy in 1995 to 920,678 mgy in 2020.

Table 8. Water Demands Assessed for 1995 and Projected for 2020
Under Average Rainfall Conditions.^a

	Lower East Coast	Lower West Coast	Upper East Coast	Kissimmee Basin	Total District
1995					
Urban Demands (mgy)	385,179	68,412	29,101	38,319	521,011
Agricultural Demands (mgy)	385,118	219,778	168,714	74,089	847,699
Regional Total Demands (mgy)	770,297	288,190	197,815	112,408	1,368,710
Urban Percent of Regional Total	50%	24%	15%	34%	38%
Agricultural Percent of Regional Total	50%	76%	85%	66%	62%
2020 Average					
Urban Demands (mgy)	533,590	126,123	49,433	68,248	777,394
Agricultural Demands (mgy)	356,521	265,031	191,559	107,567	920,678
Regional Total Demands (mgy)	890,111	391,154	240,992	175,815	1,698,072
Urban Percent of Regional Total	60%	32%	21%	39%	46%
Agricultural Percent of Regional Total	40%	68%	79%	61%	54%
1995 to 2020 Average					
Urban Demand Growth	39%	84%	70%	78%	49%
Agricultural Demand Growth	-7%	21%	14%	45%	9%
Total Demand Growth	16%	36%	22%	56%	24%
Population					
Population (1995)	4,518,401	590,939	283,457	362,837	5,755,634
Population (2020)	6,086,700	992,805	456,580	686,696	8,222,781
Population Growth	35%	68%	61%	89%	43%
Irrigated Agricultural Acreage					
Irrigated Agricultural Acreage (1995)	568,995	244,070	185,980	76,948	1,075,993
Irrigated Agricultural Acreage (2020)	503,852	292,578	211,216	116,906	1,124,552
Irrigated Agricultural Acreage Growth	-11%	20%	14%	52%	5%

a. Rates of change in urban and agricultural demand do not exactly equal population and irrigated agricultural acreage rates of change due to the following: mix of categories of use, each with its own trend; crop types with differing evapotranspiration rates; irrigation systems with varying efficiencies; soil types with a range of usable soil water capacities; and dissimilar weather patterns as evidenced by historical records from rainfall stations. Demand projections presented in the DWSA should be considered preliminary and will be modified during the water supply planning process.

Drought conditions in 2020 would further increase demand levels. The DWSA includes projections for demands associated with both average rainfall conditions and those anticipated in a drought. The severity of the drought is defined as having the frequency of occurrence of once in every ten years (as required by Section 373.036, F.S.).

The DWSA also provides utility specific demands for 1995 and projections for 2020 for each PWS utility in the SFWMD with projected pumpage of 0.5 million gallons per day (mgd) or greater in 2020. Locations of the water sources used by PWS utilities are shown in **Figure 21**.

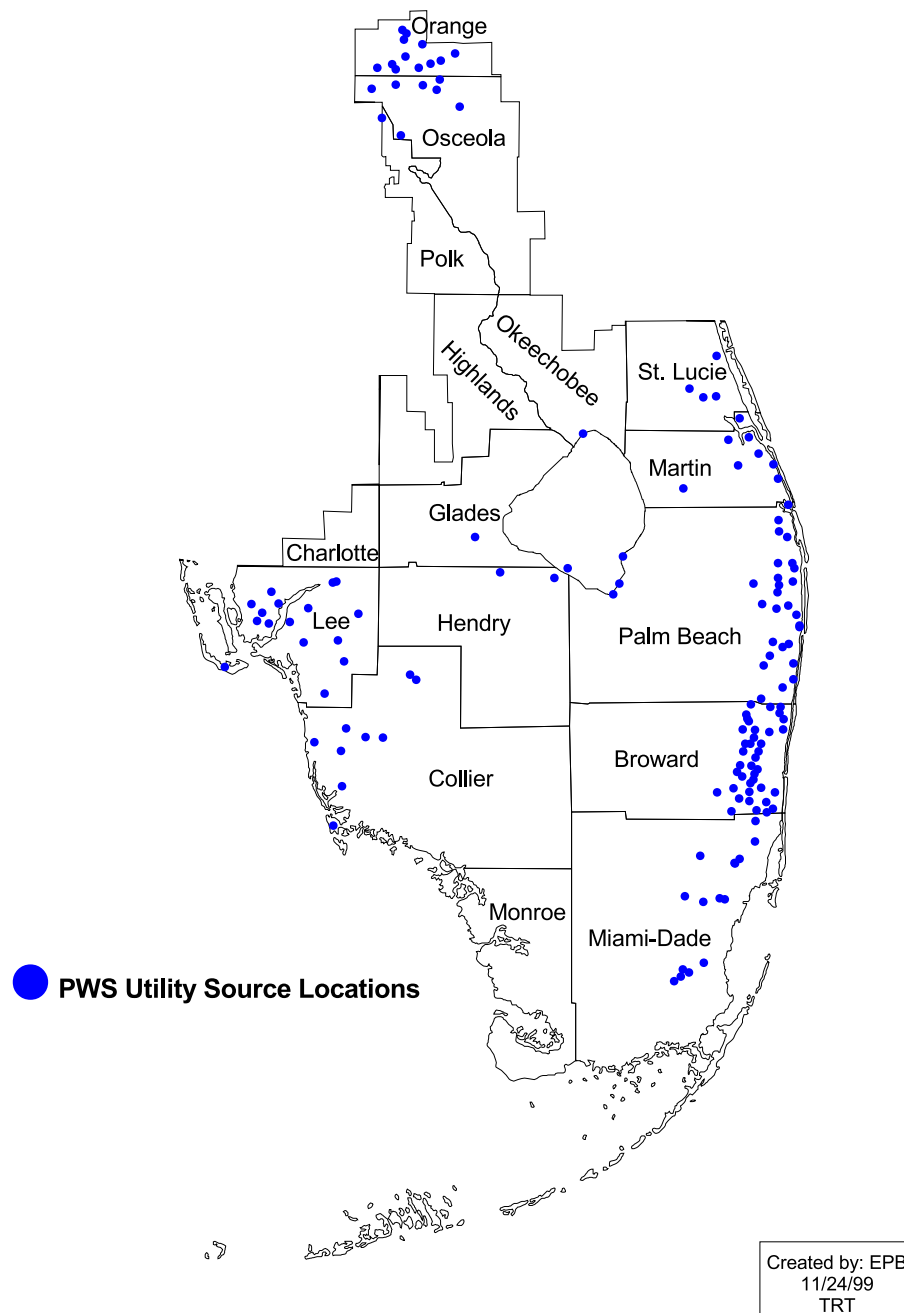


Figure 21. Public Water Supply Utility Source Locations in the SFWMD.

The DWSA also describes conservation strategies by the District to reduce projected demands. These conservation efforts are implemented by the District's Demand Management Program, which incorporates water supply planning, regulation, as well as supplemental measures in order to cultivate a conservation ethic in cooperation with water users.

Planning

The District has developed regional water supply plans for each of its four planning regions that cumulatively cover the entire District. Each regional water supply plan includes an account of needed conservation efforts, and the District aims to bring about necessary water conservation through the implementation of its regional water supply plans.

Regulation

The District's Consumptive Use Permitting (CUP) rules require submission of a water conservation plan by permittees for each water use type. Water conservation plans must address the following elements:

- Public water suppliers: irrigation hours ordinances, Xeriscape® landscape ordinances, ultra-low volume fixture ordinances, rain sensor device ordinances, water conservation-based rate structures, leak detection and repair programs, public education programs, and reclaimed water feasibility analyses
- Commercial/industrial users: water use audits, employee water conservation awareness programs, and implementation of cost-effective conservation measures
- Landscape and golf course users: Xeriscape® landscaping, rain sensor devices, and irrigation hour limitations
- Agricultural users: micro irrigation systems for new citrus and container nursery projects

In addition to CUP requirements, conservation requirements are also incorporated in District recommendations for DRIs. An integrated program between the CUP and local ordinances is created when local governments have adopted the ordinances and established a compliance program. PWS utilities are required to have a leak detection program if their unaccounted-for water is 10 percent or more.

Supplemental Measures

The District has a full-time Water Conservation Officer who works with major water user groups, water and wastewater utilities, and local governments. The Water Conservation Officer assists water users in establishing cost-effective projects and programs specifically tailored for each type of use. Supplemental water conservation measures which show significant savings for major water users are subject to District

funding priorities and cooperative funding partnerships with other state agencies. However, at this time, District budget priorities have been such that grant funding for this initiative will be minimal.

Source Protection

Surface Water

In order to make South Florida more accommodating for human habitation, the natural watercourses were channelized and interconnected to expedite movement of water away from urban or agricultural lands. South Florida presently has an extensive, heavily managed canal network; a series of high-capacity, low-head pumping installations; and several surface water impoundments totaling more than 1,000 square miles. These same canals and structures can be operated either for flood control or water supply purposes. The heart of this modern surface water management system consists of Lake Okeechobee and the interconnected major features of the Central and Southern Florida (C&SF) Project. These include the Kissimmee Chain of Lakes; the Kissimmee River; Lake Okeechobee and its outlets; the Water Conservation Areas (WCAs); Everglades National Park and Florida Bay; and the coastal canal networks of Miami-Dade, Broward, Palm Beach, Martin, and St. Lucie counties.

Lake Okeechobee functions as a primary storage reservoir for excess (flood) waters from lands adjacent to and north of the lake. In addition, the lake provides water supply to downstream basins. Most of the water enters the lake from rainfall, local runoff, and discharge from the Kissimmee River, Fisheating Creek, and Taylor Creek. Water is lost from the lake by evaporation and by discharge to the Everglades Agricultural Area (EAA) through the S-2 and S-3 structures, to the Caloosahatchee River through the S-77 structure, and to the St. Lucie River through the S-308 structure. A schematic of the District's surface water management system is shown in **Figure 24 in Chapter 4**, and in detail in the Structure and Canal Locations map inserted into this document's front cover.

The EAA, located south and east of Lake Okeechobee, has very little natural drainage and, therefore, depends on the canals and large pump stations to provide protection from flooding. Four major canals traverse the area from north to south. Structures and pumps at the S-2 and S-3 stations release water from Lake Okeechobee into the northern end of the EAA for irrigation during the dry season. These facilities are also occasionally used to pump water into the lake for emergency flood relief. The S-5, S-6, S-7, and S-8 structures pump excess water from the southern portion of the EAA into the WCAs. Additional downstream structures provide for transfer of this water through the WCAs to east coast canals and to the sloughs and wetlands of the Everglades National Park.

Ground Water

Three major aquifer systems have been identified in South Florida. The Floridan Aquifer System is a deep, regionally extensive, artesian limestone system with generally

high transmissivity. The Floridan Aquifer System is the primary source of water supply in the northern counties of the District, and is used as a source of supplemental irrigation water as far south as Martin County. This system receives direct recharge along a structural high, which occurs in the central part of the state. From these recharge areas, the Floridan dips southward and becomes confined by the clays and silts of the Hawthorn Group. The potentiometric surface is highest at the point of primary recharge and decreases to the south. Near Lake Okeechobee the potentiometric surface of the aquifer exceeds land surface, causing Floridan wells to freely flow up to 1,000 gallons/minute (gpm).

The Intermediate Aquifer System is developed within the Hawthorn Group, mainly in southwestern Florida, and includes several aquifers. These leaky artesian aquifers consist of moderately transmissive sandstone or sandy and shelly limestone beds and produce fair-to-poor quality water. In most other parts of the state, the Hawthorn Group is a confining unit, separating the Surficial Aquifer System from the Floridan aquifer.

The Surficial Aquifer System consists of sands, sandy and shelly limestone, sandstone and silts, and contains water table and semiconfined aquifers. A major aquifer in this system is the Biscayne aquifer in Miami-Dade, Broward, and southern Palm Beach counties. This water table aquifer generally contains water of potable quality, and wells in it can yield in excess of 7,000 gpm. Other surficial aquifers have water quality that varies from potable to nonpotable, and yields to wells may vary from a few to over 2,000 gpm.

Three hydrogeologic regions have been identified within the SFWMD. In the northern region, generally north of Lake Okeechobee, water in usable quantity and quality is available from the surficial aquifers and the Floridan Aquifer System. The Floridan Aquifer System yields in excess of 2,000 gpm at the northern limits of the SFWMD and at various points in its recharge area along the central ridge. The District has conducted studies of this aquifer in the general vicinity of Lake Okeechobee and in Martin and St. Lucie counties. These studies have shown that water from the Floridan aquifer generally has high levels of dissolved solids that can be a source of contamination to the surficial aquifers. Use of water from the Floridan aquifer in these areas should be discouraged in favor of the better quality water available from shallow aquifers.

In the southeastern region, only the surficial aquifers are suitable as potable ground water supply sources. The Biscayne aquifer has extremely high transmissivities along the coast and is moderately thick in these areas. Wellfields in this aquifer can generally yield in excess of 2,000 gpm. The operation of wellfields near the coast may be constrained by saltwater intrusion. This aquifer tends to thin out toward the western portions of Miami-Dade and Broward counties, underneath the WCAs, and total ground water yields in these areas are limited. Wellfields in the Biscayne aquifer can be effectively recharged by the WCAs and the coastal canal system.

The southwestern part of the District is characterized by a complex sequence of hydrostratigraphic units representing all three aquifer systems. In this region, water availability is constrained both by high mineralization and low transmissivities in some

aquifers. The most productive aquifers in this area are located in the Surficial and Hawthorn Aquifer Systems in northeastern Collier and southwestern Hendry counties. These aquifers are recharged locally by rainfall in the Immokalee Rise. The District has conducted surveys of ground water resources of Collier and Lee counties that have identified a number of potential areas for future wellfield development.

Water Resource Caution Areas

In most areas within the District, water resources are deemed to be insufficient to meet all local demands, especially during dry periods. In these areas, thresholds for the issuance of consumptive use permits have been reduced to provide additional protection to the resource. Locations of these Water Resource Caution Areas (WRCAs) are shown in **Figure 22**. Based on analyses already completed in the water supply planning process no changes in the WRCA boundaries have been proposed in the Lower West Coast (LWC), Lower East Coast (LEC), and Kissimmee Basin planning regions. In the Upper East Coast (UEC) planning region, it is proposed that the WRCA be reduced from covering the entire region to include only the coastal areas (**Figure 22**).

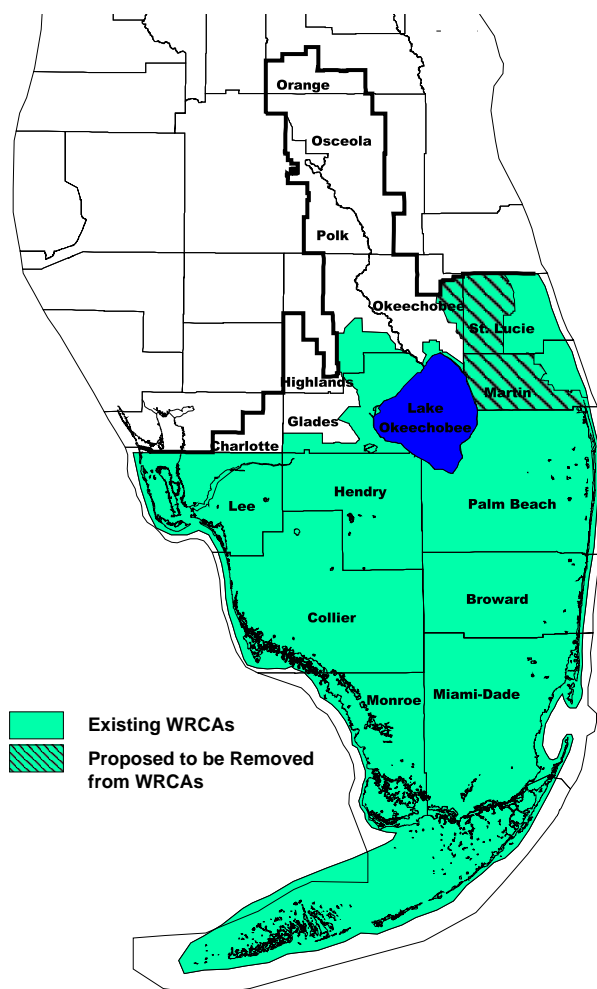


Figure 22. Locations of Designated Water Resource Caution Areas within the SFWMD.

ISSUES

All feasible sources will be considered during the SFWMD's water supply planning process, including conservation, reuse, supply development, and alternative technologies. Selected options must ensure sustainability for natural resources, water quality, and human demands. The water supply planning process to date has raised the following main issues:

Issue 1. Existing and future water demands in certain locations are threatening to exceed sustainable yields from particular sources.

Issue 2. Increased withdrawals in combination with land use changes create the potential for contamination of water supply sources.

Objectives, Strategies, and Performance Measures

Core Objective WS 1: Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs.

The SFWMD has developed strategies to meet this core objective. The strategies will be implemented via budgeted activities in the categories of Planning, Public Works Construction, Operations and Maintenance, Regulation, Outreach, and Monitoring and Evaluation (**Table 9**).

Performance Measures for Core Objective WS 1

- **Core WS 1(a):** Percentage of domestic wastewater reuse
- **Core WS 1(b):** Gross per capita water use (public supply) by District and water supply planning region
- **Core WS 1(c):** Within each water supply planning region:
1) the estimated amount of water supply to be made available through the water resource development component of the regional water supply plan; 2) percent of estimated amount under development; and 3) percent of estimated amount of water actually made available
- **Core WS 1(d):** Within each water supply planning region, the estimated additional quantities of water supply made available through District water supply development assistance

Table 9. Activities Table for Core Objective WS 1.

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Core Objective WS 1: Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs				
Planning				
Da01	LEC Water Supply Plan Development and Coordination	The LEC Regional Water Supply Plan is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the LEC Planning Area. The planning area consists of Palm Beach, Broward, and Miami-Dade counties, as well as portions of Hendry, Collier, and Monroe counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet those demands while also meeting the needs of the environment.	2000	SFWMD
Db01	LWC Water Supply Plan	The LWC Water Supply Plan is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the LWC Planning Area. The planning area consists of Lee County, most of Collier and Hendry counties, and portions of Charlotte, Glades, and Monroe counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet those demands while also meeting the needs of the environment.	2000	SFWMD
Jg01	Caloosahatchee Water Management Plan	This activity coordinates implementation projects from the <i>Caloosahatchee Water Management Plan</i> (SFWMD, 2000d) approved by the Governing Board in April 2000. The projects are related to the Caloosahatchee River and Estuary, and the river's tributary basins.	2000	SFWMD
Dd01	Kissimmee Basin Water Supply Plan Development	The Kissimmee Basin Water Supply Plan is a long-range strategy for dealing with the future water supply needs of a growing population, as well as the local environment in the Kissimmee Basin Planning Area. The planning area consists of portions of Orange, Osceola, Polk, Highlands, Glades, and Okeechobee counties. The plan projects future water demands for urban areas and agriculture for 2020 and develops strategies to meet these demands while also meeting the needs of the environment.	2000	SFWMD
Da06	Northern Palm Beach County Water Resource Development Program	This program is for the development of a subregional comprehensive plan for northern Palm Beach County. The plan focuses primarily on land areas located within the southern L-8 Basin, the city of West Palm Beach Water Catchment Area/water supply lake system, and the Loxahatchee Slough and associated tributary areas (known collectively as the C-18 Basin).	2001	SFWMD
Dc01	UEC Water Supply Plan Development and Coordination	This UEC Water Supply Plan incorporates development of a regional water supply plan for Martin and St. Lucie counties and eastern Okeechobee County. The plan projects future water demands (for at least a 20-year planning horizon) for urban areas and agriculture, and develops strategies to meet these demands while meeting the needs of the environment. The plan's strategies and recommendations incorporate both regional responsibilities (water resource development) and local responsibilities (water supply development), as well as identifies potential funding sources. The first water supply plan for the UEC was completed in 1998 (SFWMD, 1998d). It is scheduled to be updated in 2003.	2003	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Public Works Construction				
Pb01	Ten Mile Creek Critical Project	The Ten Mile Creek Critical Project is a critical restoration project which was authorized by Congress under Section 528 of the Water Resources Development Act of 1996. The project includes infrastructure improvements for the construction of an aboveground reservoir to receive water from Ten Mile Creek; a gated water-level control structure for the release of water back to the creek from the polishing cell; a gated gravity control structure for draining the facility for maintenance purposes; control structures between the deepwater storage area and the polishing cell for operational control; and an overflow weir. In addition, the project consists of the required planning and design activities, land acquisition, operational, and Best Management Practice (BMP) plans for the basin and reservoir.	2003	SFWMD
Pe04	Western Hillsboro (Site 1) ASR Pilot Project	This pilot project will determine the most suitable sites for the Aquifer Storage and Recovery (ASR) wells in the vicinity of the reservoir and determine the optimum configuration of those wells. The identification of the hydrogeological and geotechnical characteristics of the soils and aquifer will also be determined. The pilot project will also determine the specific water quality characteristics of water within the aquifer, as well as the quality of water proposed for injection and the water quality characteristics of water recovered from the aquifer.	2003	SFWMD
Pc03	L-31N Seepage Management Pilot Project	The purpose of this project is twofold: 1) determine the appropriate technology to control seepage from Everglades National Park and 2) determine the appropriate amount of ground water flow that should be returned to Everglades National Park during the wet season. The ground water flow that is intercepted must be balanced such that impacts to Miami-Dade County's west wellfield and freshwater flows to Biscayne Bay are minimized. Therefore, monitoring will be an important element of the pilot project.	2004	SFWMD
Pe05	Caloosahatchee ASR Pilot Project	This pilot project will identify the most suitable sites for ASR wells in the vicinity of the reservoir and will determine the optimum configuration of those wells. The pilot project will provide information regarding the characteristics of the aquifer system within the Caloosahatchee River Basin, as well as determine the hydrogeological and geotechnical characteristics of the upper Floridan aquifer. The pilot project will also determine the specific water quality characteristics of waters to be injected, the specific water quality characteristics and the amount of water recovered from the aquifer, and the water quality characteristics of water within the receiving aquifer.	2006	SFWMD
Pc09	WCA-3A and WCA-3B Seepage Management	This project includes canals, levees, water control structures, and a Stormwater Treatment Area (STA)/impoundment with a total storage capacity of 6,400 acre-feet located in western Broward County.	2008	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Pc14	Broward County Secondary Canal System	The Broward County Secondary Canal System feature includes a series of water control structures, pumps, and canal improvements located in the C-9, C-12, and C-13 canal basins and the eastern basin of the North New River Canal in central and southern Broward County. The purpose of this feature is to reduce water shortages by recharging local wellfields and stabilizing the saltwater interface. Excess water in the basins will be pumped into the coastal canal systems to maintain canal stages at optimum levels.	2009	SFWMD
Pc16	C-23 and C-24 Basins Water Preserve Area	The C-23 and C-24 Basins Water Preserve Area includes aboveground reservoirs with a total storage capacity of 349,400 acre-feet located in the C-23, C-24, C-25, Northfork, and Southfork basins in St. Lucie and Martin counties. The final location, size, depth, and configuration of these facilities will be determined through detailed analysis to be completed as a part of the Indian River Lagoon Feasibility Study.	2009	SFWMD
Pc04	Lake Belt Technology Pilot Project	This pilot project will determine construction technologies, storage efficiencies, impacts on local hydrology, and water quality effects of in-ground reservoirs. Water quality assessments will include a determination as to whether the in-ground reservoirs and seepage barriers will allow for storage of untreated waters without concerns about ground water contamination.	2012	SFWMD
Pc28	Southern L-8 In-ground Reservoir General Reevaluation Report (GRR)	This project includes a combination aboveground and in-ground reservoir with a total storage capacity of approximately 48,000 acre-feet located immediately west of the L-8 Borrow Canal and north of the C-51 Canal in Palm Beach County.	2014	SFWMD
Pc25	Flows From WCA-3 to the Central Lake Belt Area	Excess water in WCA-3A and WCA-3B will be captured to reduce stages above target stages in WCA-3 and to divert excess water through modified structures at S-9 and S-31 to the Central Lake Belt Storage Area via the L-33 Borrow Canal.	2016	SFWMD
Pc24	Flows From Central Lake Belt Storage Area to WCA-3B	This project includes pumps, water control structures, an STA, and a combination aboveground/in-ground storage reservoir with a total storage capacity of approximately 190,000 acre-feet located in Miami-Dade County.	2017	SFWMD
Da23	Hillsboro (East) ASR Pilot Project	This project includes the installation of one 5.0-mgd ASR well, one upper Floridan aquifer monitoring well, five surficial aquifer supply wells, and raw water piping to convey water from the surficial wells to the ASR well.	2002	SFWMD
Da02	LEC Water Supply Development Implementation	The <i>Lower East Coast Regional Water Supply Plan</i> (SFWMD, 2000b) will be implemented by 1) using regional and local water supply planning efforts to predict when alternative sources will be needed and to provide guidance as to which source may be most appropriate for meeting the particular needs of each user; 2) conducting appropriate hydrologic and ecologic studies to identify the freshwater input needs of the Lake Worth Lagoon; and 3) encouraging the use of any permissible alternative water supply option which would achieve a reduction in saltwater intrusion.	2004	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Da22	Miami-Dade County ASR	The Miami-Dade County ASR uses excess wellfield capacity available from existing wellfields in the surficial aquifer during the wet season to provide water for storage in the upper Floridan Aquifer System. This water will later be recovered during the dry season to reduce the demands of the utility wellfields on the surficial aquifer.	2004	SFWMD
Ca	Capital Program	The Capital Program includes the capital improvements, modifications, or repairs to District water control and conveyance facilities.	Ongoing	SFWMD
Dd03	Kissimmee Basin Water Resource Development Implementation	This activity is for the implementation of the regional water resource development projects recommended in the <i>Kissimmee Basin Water Supply Plan</i> (SFWMD, 2000a).	Ongoing	SFWMD
Db03	LWC Water Resource Development Implementation	This activity is for the implementation of regional water resource development projects recommended in the <i>Lower West Coast Water Supply Plan</i> (SFWMD, 2000c).	Ongoing	SFWMD
Dc03	UEC Water Resource Development Implementation	This activity is for the implementation of regional water resource development projects recommended in the <i>Upper East Coast Water Supply Plan</i> (SFWMD, 1998d).	Ongoing	SFWMD
Pz03	Comprehensive Everglades Restoration Plan (CERP) Reserves	This activity includes the cash reserves for the implementation of the CERP. It also includes the real estate support for the CERP. Real estate acquisition costs are budgeted to this activity and charged to the appropriate activity as acquisition activity occurs.	Ongoing	SFWMD
Operations and Maintenance				
Pc01	Lake Istokpoga Regulation Schedule	This feature includes development of a plan to address water resource problems in the Lake Istokpoga Basin. The major focus of this plan is to create a balance between environmental needs, water supply, and flood control in the Lake Istokpoga Basin.	2002	SFWMD
Ce	Structure Operations	Structure operations include the movement of water, pumping operations activities, and automation for the C&SF Project canal system.	Ongoing	SFWMD
Cf	Water Control Structure Maintenance	This activity is for water control structure maintenance, including District pump stations, structures, project culverts, and special construction projects as determined.	Ongoing	SFWMD
Cg	Canal/Levee Maintenance	This activity is for the maintenance of canals and levees, including replacement of project culverts, bank stabilization, revegetation, mowing, tree removal, and shoal removal.	Ongoing	SFWMD
Ci	Equipment Maintenance	Equipment maintenance consists of preventive and cyclic maintenance and restoration of a variety of equipment.	Ongoing	SFWMD
Cj	Electronics, Communications, and Control Device	District communication, electronics, and control devices must be developed, installed, supported, and maintained. These include Supervisory Control and Data Acquisition (SCADA) system devices, microwave system devices, and District radio communication components.	Ongoing	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Ck	Exotic Plant Control	Invasive exotic aquatic and terrestrial vegetation within District canals, canal banks, lakes, rights-of-way, and preserve lands must be controlled. This control is accomplished through in-house and contracted herbicidal, mechanical, and biological control methods. This program works primarily to ensure conveyance capacity within canals and water bodies.	Ongoing	SFWMD
Co	General Maintenance	This activity provides preventative maintenance and repairs to District fixed and mobile equipment to ensure operation of the District water control system and provides maintenance and repairs to District field facilities.	Ongoing	SFWMD
Dj06	C&SF Project Operational Planning	This activity includes, but is not limited to, (a) regional modeling support for the District and the U.S. Army Corp of Engineers (USACE) to develop and implement routine operational procedures (e.g., implementation of a Water Supply and Environment [WSE] schedule for Lake Okeechobee); (b) development of rain-driven operating rules for the greater Everglades and the CERP components; and (c) development of operational modifications recommended in the <i>Lower East Coast Regional Water Supply Plan</i> (SFWMD, 2000b) (e.g., supply-side management modifications, rain-driven operations).	Ongoing	SFWMD
Regulation				
Hb	Water Use Permitting	This program involves the review of water use permit applications. The objective is to ensure safe, efficient, equitable, and reliable development of the state's water resources. The major components are 1) review and prepare recommendations for permit applications for all consumptive uses of water within the District boundaries, 2) provide postpermit compliance checks on priority projects based on staffing resources, and 3) review and issue well construction permits for specific water wells within District boundaries. Water use permitting also includes permit planning, permit issuance, dispute resolution, mitigation support, technical support for enforcement, communication with the water supply planning activities of this agency, and criteria and rule development.	Ongoing	SFWMD
Hb01	Revise Consumptive Use Permitting (CUP) Rules	The last time District water use rules were substantially modified was in 1993, when the water conservation rules were updated. Since that time, numerous changes in legislation, District policy, and the development of the regional water supply planning process have caused District staff to reexamine the agency's water use rules. Some of the proposed changes will consist of administrative updates, while others involve technical criteria changes which relate to the implementation objectives of the District's regional water supply planning process.	2001	SFWMD
Outreach				
Da23	Hillsboro (East) ASR Pilot Project	A pilot regional ASR project will be located west of U.S. 441 along the Hillsboro Canal, through cooperation with Palm Beach County. This project is associated with the development of a new wellfield to serve Palm Beach County's Water Treatment Plant Number 9.	2002	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Da02	LEC Water Supply Development Implementation	The <i>Lower East Coast Regional Water Supply Plan</i> (SFWMD, 2000b) will be implemented by 1) using regional and local water supply planning efforts to predict when alternative sources will be needed, and to provide guidance as to which source may be most appropriate for meeting the particular needs of each user; 2) conducting appropriate hydrologic and ecologic studies to identify the freshwater input needs of the Lake Worth Lagoon; and 3) encouraging the use of any permissible alternative water supply option which would achieve a reduction in saltwater intrusion.	2004	SFWMD
Da22	Miami-Dade County ASR	The Miami-Dade County ASR uses excess wellfield capacity available from existing wellfields in the surficial aquifer during the wet season to provide water for storage in the upper Floridan Aquifer System. This water will then be subsequently recovered to reduce the demands of the utility wellfields on the surficial aquifer during the dry season.	2004	SFWMD
Db02	LWC Water Supply Development Implementation	This activity will evaluate LWC alternative water supply sources, or combination of alternatives, with local water users to find the combination which best suits local requirements and conditions.	Ongoing	SFWMD
Dm	Alternate Water Supply (AWS) Cooperative Projects	AWS Cooperative Projects annually provide for the following: the receipt of AWS project applications; the review, ranking, and Governing Board approval of the proposed contract awards; execution of the contractual agreements; and the development of annual reports to the Florida Legislature. This program is being significantly cut back for FY2001 to provide funding for the CERP.	Ongoing	SFWMD
	Water Conservation	The District's water conservation efforts, also called demand management, refers to water use practices and technologies that provide the services desired by the users while using less water. The District's Demand Management Program incorporates water supply planning, regulation, and supplemental measures in order to cultivate a conservation ethic in cooperation with water users.	Ongoing	SFWMD
Monitoring and Evaluation				
Da03	Hydrologic Modeling and Analysis - Water Resource Development	Regional and subregional modeling to support the implementation of recommendations from the <i>Lower East Coast Regional Water Supply Plan</i> (SFWMD, 2000b) and their associated regulatory/rulemaking activities. These regulatory/rulemaking activities include reservations of water for natural systems and Minimum Flows and Levels (MFLs). Efforts will also include preregulatory modeling for water users.	Ongoing	SFWMD

Table 9. Activities Table for Core Objective WS 1. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Dp02	Hydrologic Management - Hydrologic Studies	This activity provides fundamental hydrogeologic support across many programs including 1) the development and maintenance of a well inventory, lithologic application to store hydrogeologic information collected by the District and 2) the U.S. Geological Society (USGS) Cooperative Agreement Program. The USGS Cooperative Agreement Program is jointly funded and includes 12 hydrogeologic water resources investigations which support implementation of the recommendations made in the <i>Lower East Coast Regional Water Supply Plan</i> (SFWMD, 2000b).	Ongoing	SFWMD
Dz03	Water Supply Program Controls	Programmatic oversight for the Water Supply Program including, but are not limited to, scheduling and tracking; estimating and forecasting; cost tracking and reporting; web site development and maintenance; progress reporting; and document control.	Ongoing	SFWMD

Core Objective WS 2: Prevent contamination of water supplies

The SFWMD has developed strategies to meet this core objective. The strategies will be implemented via budgeted activities in three categories: Regulation, Outreach, and Monitoring and Evaluation (**Table 10**).

Performance Measures for Core Objective WS 2

- **Core WS 2(a):** Percentage of surface water supply sources for which water quality fully attains the designated use
- **SFWMD WS 2(b):** Percentage of PWS wellheads subject to wellhead protection ordinances

Table 10. Activities Table for Core Objective WS 2.

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
Core Objective WS 2: Prevent contamination of water supplies				
Regulation				
Hb01	Water Use, Application, Compliance, and Criteria Development	Water use permitting (CUP) is a state mandated program assigned exclusively to the water management districts. The objective is to insure safe, efficient, equitable, and reliable development of the state's water resources. The major components are 1) review and prepare recommendations for permit applications for all consumptive uses of water within the District boundaries; 2) provide postpermit compliance checks on priority projects based on staffing resources (approximately 300 projects per year); 3) review and issue well construction permits for specific water wells within District boundaries; and 4) perform water conservation rulemaking analysis and make recommendations. This activity also includes prepermit planning, permit issuance, dispute resolution, litigation support, technical support, enforcement, communication with water supply planning activities of this agency, and criteria and rule development.	Ongoing	SFWMD
Outreach				
Ga01	Local Government Comprehensive Plans	Comprehensive plans and amendments are reviewed by the District as required by Chapter 163, F.S. This activity is being significantly cut back for FY2001 to provide funding for the CERP.	Ongoing	SFWMD
Gc03	Local Liaison	Liaison with local county and city governments and agencies, including Chapter 298 Districts.	Ongoing	SFWMD
Event Specific Code	Water Shortage Management	The Governing Board may declare a water shortage and enforce the associated restrictions when not enough water is available for present or anticipated needs, or when a reduction in demand is needed to protect water resources. Ground water and surface water levels are continuously monitored. If they fall to levels considered critical for the time of year and anticipated demands, the water shortage process is initiated, pursuant to Section 373.246, F.S. Different levels of drought require corresponding levels of restrictions. Water shortage declarations range from a warning, which has voluntary moderate restrictions, through four phases of water shortage, to an emergency, which can disallow any further withdrawals.	As Needed	SFWMD
	Wellhead Protection Programs	The FDEP has a number of regulations under the Florida Administrative Code, which function to regulate hazardous and solid waste, storm water discharges, storage tank systems, etc. The primary goal of these legislative policies is to prevent problems before they occur, as contrasted to correcting or providing remedial action for preexisting problems. The intent of these ordinances is to protect and safeguard the health, safety, and welfare of the public by providing criteria for regulating and prohibiting the use, handling, production, and storage of certain deleterious substances which may impair present and future PWS wells and wellfields. The District has and will provide assistance to local governments in the preparation of their wellfield protection ordinances.	Ongoing	FDEP

Table 10. Activities Table for Core Objective WS 2. (Continued)

FY2001 Budget Activity Code	Strategies	Description	Year Complete	Responsible Entity
	Recharge Mapping	As directed by Chapter 373, F.S., the SFWMD provides ground water recharge information to local governments to assist them with the development and implementation of appropriate water resource policies. In order to accomplish this, the SFWMD undertook a project to map recharge areas within its four planning regions. This effort was completed in 1995. The maps delineate precipitation recharge and leakage rates for all the primary PWS aquifers utilized throughout South Florida. The District has and will provide assistance to local governments in the delineation of prime recharge areas in order to implement voluntary tax assessment programs (under the Bluebelt Act) that protect the state's prime recharge areas.	As Needed	SFWMD
Monitoring and Evaluation				
Hf01	Criteria Development and Support	This activity supports the Regulation Program in developing a scientific basis for wetland protection criteria used in water use and environmental resource permitting. The activity was originated at the direction of the Governing Board and Executive Office to develop a research and monitoring program to investigate impacts. This information is needed to support rulemaking for the LWC and UEC regions, and is a critical element in the implementation of water supply plans for both regions.	2003	SFWMD